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**SOLICITATION AMENDMENT  
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise  
indicated, all other terms and conditions of the Solicitation  
remain the same.

Ce document est par la présente révisé; sauf indication contraire,  
les modalités de l'invitation demeurent les mêmes.

**Comments - Commentaires**

**Vendor/Firm Name and Address  
Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**  
Public Works and Government Services Canada - Pacific  
Region  
401 - 1230 Government Street  
Victoria, B. C.  
V8W 3X4

<b>Title - Sujet</b> Non-Destructive Testing Services	
<b>Solicitation No. - N° de l'invitation</b> W3555-220655/A	<b>Amendment No. - N° modif.</b> 001
<b>Client Reference No. - N° de référence du client</b> W3555-220655	<b>Date</b> 2021-12-31
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$XLV-594-8327	
<b>File No. - N° de dossier</b> XLV-1-44068 (594)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> Pacific Standard Time PST <b>on - le 2022-01-11</b> Heure Normale du Pacifique HNP	
<b>F.O.B. - F.A.B.</b> Specified Herein - Précisé dans les présentes	
<b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input checked="" type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Birtwistle, Tracy	<b>Buyer Id - Id de l'acheteur</b> xlv594
<b>Telephone No. - N° de téléphone</b> (236) 464-0497 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b>	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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## **SOLICITATION AMENDMENT 001**

This Amendment is raised to:

- a) Address questions and revise the Solicitation.

### **Question 1**

Regarding Annex A (Statement of Work), FMF CB Non-Destructive Testing Services:

Within Annex "A" Statement of Work, Paragraph 8, a and b states that these specifications are attached, however they not included in the RFP. Could you please provide these specifications?

### **Response to Question 1**

Yes, the specifications are available upon request.

Bidders must contact the Contracting Authority identified in Article 7.6.1 and make arrangements to obtain a copy of the files.

### **Revision 1:**

Replace:

Annex A - Statement of Work, FMF CB Non-Destructive Testing Services in its entirety.

With

Annex A -Statement of Work, FMF CB Non-Destructive Testing Service in its entirety.

## ANNEX A

### STATEMENT OF WORK

**Title:** FMF CB Non-Destructive Testing Services

#### Objective

1. To carry out non-destructive testing (NDT), primarily radiography (RT), of HMC Ship and Submarine structure and pipe weld repairs to provide Quality Control (QC) in accordance with specified standards and policies as required by Fleet Maintenance Facility Cape Breton (FMF CB).

*Streams 1, 2, 3*

#### Background

2. When repairs are carried out to steel structure or metal pipe work on HMC Ships and Submarines the welds are subject to QC standards to support safety assurance. For Class 1 and Class 2 welds as defined in paragraph 8d there is a requirement for RT to be completed in accordance with the standards specified in paragraphs 8a, b and c. FMF CB requires contractor services to provide that capability as the need arises. The work is often instigated from repairs found under survey not from planned modifications or upgrades and as such is unpredictable. FMF CB requires that a notice period is agreed for the services to be provided as these requirements arise.

*Streams 1, 2, 3*

#### Scope

3. The Contractor must conduct RT of approximately 30 pipe welds and 20 structural welds per year on HMC Ships and Submarines in dock or alongside a jetty for 2 years. DND expect to activate an optional 1 year extension subject to funding. The Contractor must carry out approximately 10 MT/UT/PT inspections per year to supplement FMF capability. This is an estimate and the volume of work may change but the type of task and technical specifications will be consistent with what is described here.

*Streams 1, 2, 3*

#### Tasks and Technical Specifications

4. There will be three streams of Task Authorisation under this contract. Each paragraph of this Statement of Work is annotated with which streams are applicable.
  - a. Stream 1 – Radiography of pipes
  - b. Stream 2 – Radiography of structural plate and members
  - c. Stream 3 – Surface crack detection [Magnetic Particle Inspection (MT), Liquid Dye Penetrant Inspection (PT)] and Ultrasonic Thickness Measurements (UT)

*Streams 1, 2, 3*

5. To reach the stated objective the Contractor must meet the requirements of the following technical specifications and task details:

- a. For a given Task Authorisation (TA) the Contractor must
  - i. Provide all equipment and services.
  - ii. Respond within 1 business days to arrange site visit details such as time and date.
  - iii. Carry out the NDT in the scope of that TA within 3 business days of receiving it.
  - iv. Provide all deliverables relating to each weld inspection within 3 business days of the NDT including the film (where applicable), the NDT report and the technique sheet.
- b. FMF CB may ask the Contractor for initial feedback of results following conduct of NDT prior to receiving deliverables.

*Streams 1, 2, 3*

6. The Contractor must carry out all radiography in accordance with the standards quoted in paragraph 8. The Contractor must include as a minimum, all the data in the example technique sheets and NDT report provided at Appendices 1 to 3. From within the requirements articulated in those standards it is important to note the following details referenced specifically here for clarity:
  - a. The correct interpretation of the standards with respect to radiography of Class 1 and Class 2 pipe welds of the sleeve and socket type is that a total of 7 radiographs are required per sleeve and socket joint. That comprises 3 shots per fillet weld (from angles as specified in paragraph 8) and one shot to identify and quantify the gap between the pipe ends. If this is not achievable for a given weld the Contractor must contact FMF CB to consult with the customer on an acceptable alternative arrangement (remove interference items or a modified RT technique). If a modified technique is used this must be clearly articulated in the technique sheet.
  - b. The correct interpretation of the standards with respect to radiography of Class 1 and Class 2 pipe welds of the butt weld type is that 3 radiographs are required depending on pipe diameter. If this is not achievable for a given weld the Contractor must contact FMF CB to consult with the customer on an acceptable alternative arrangement (remove interference items or a modified RT technique). If a modified technique is used this must be clearly articulated in the technique sheet.
  - c. The film must include as a minimum the following data which is to match the data on the corresponding Radiography Evaluation Reports and Technique Sheets.
    - i. Weld number
    - ii. Radiograph number
    - iii. Date
    - iv. Weld type
    - v. Pipe number
  - d. Weld numbers are to be quoted accurately in all deliverables in accordance with FMF CB weld maps which will be supplied with each TA.
  - e. All radiographs and associated Radiography Evaluation Reports and Technique sheets must be reviewed and approved by a Level 3 qualified radiographer and they must clearly state if the inspection was a pass or fail.
  - f. If the precise requirements called for in paragraphs 6 and 7 cannot be met for any reason the Contractor must recommend an alternative technique such as that shown in the example in Appendix 2. FMF CB will confirm if that alternative technique is acceptable or not before the radiography is completed. On any given task authorization call-out the

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Contractor should achieve as much other work as possible and contact FMF CB to agree alternative techniques where the requirements of the standards in paragraph 8 cannot be met.

*Streams 1, 2*

7. The Contractor must carry out all MT, UT and PT inspections in accordance with specifications, examples and standards quoted in paragraph 8.

*Stream 3*

### **Applicable Standards**

8. The Contractor must comply with all the relevant sections of the standards and specifications listed below and provide deliverables with a minimum of the data and detail shown in the examples given in Appendices 1-3:

**Available upon request:**

- a. D-49-003-003/SF-001 WELDING SPECIFICATION FOR HMC SHIPS AND AUXILIARIES
- b. D-49-003-003/SF-002 PIPE WELDING AND BRAZING SPECIFICATION

**Available on-line:**

- c. DEF STAN 02-729, PT 1-5, REQUIREMENTS FOR NON-DESTRUCTIVE EXAMINATION METHODS
- d. DEF STAN 02-773, ISSUE 3, MINIMUM NON-DESTRUCTIVE EXAMINATION ACCEPTANCE STANDARDS FOR WELDS IN HM SUBMARINES AND SURFACE SHIPS NOT IN CLASS
- e. CANADIAN NUCLEAR SAFETY COMMISSION REGULATIONS ENFORCING THE NUCLEAR SAFETY CONTROL ACT

**APPENDICES:**

- f. APPENDIX 1 - EXAMPLE TECHNIQUE SHEET (NO MODIFICATIONS)
- g. APPENDIX 2- EXAMPLE RADIOGRAPHIC EVALUATION REPORT AND TECHNIQUE SHEET (MODIFIED SLEEVE AND SOCKET WELD)
- h. APPENDIX 3- EXAMPLE RADIOGRAPHIC EVALUATION REPORT AND TECHNIQUE SHEET (MODIFIED BUTT AND SLEEVE AND SOCKET FILLET)

*Streams 1, 2*

### **Travel**

9. The Contractor must arrange and provide all travel required to respond to TAs at no additional cost.

*Streams 1, 2, 3*

### **Constraints**

10. Listed below are constraints associated with the project:

- a. The Contractor must work within allocated times which will normally be between 1600 and 0800 hours on weekdays and any time over weekends depending on programme and project requirements.
- b. The Contractor must respond to TA notice within 1 business days and must attend to carry out the work at a minimum notice of 3 business days (although FMF CB will endeavour to always give as much notice as possible).

- c. The Contractor must provide the official deliverables for weld radiographed within 3 business days of having completed the radiograph. Feedback via email indicating the result must be sent as soon as possible to enable to client to proceed, or repair the weld.
- d. HMC Ships and Submarines require minimum Reliability Status security clearance. Security requirements apply both to the Contractor as an organisation as well as the specific individuals and/or sub-contractor(s) carrying out the work.
- e. The Contractor must attend the free FMF CB Subsafe course and other mandatory training (totalling 1 working day of effort for each person required to work in FMF).
- f. The Contractor must be registered with the Nuclear Safety Programme.

*Streams 1, 2, 3*

### **Client Support**

11. The list below is support provided by the client:

- a. FMF CB will ensure areas of work are gas free and proven safe for entry as appropriate.
- b. FMF CB will provide ventilation and lighting equipment.
- c. FMF CB will provide safety sentries as required and will ensure Worksafe BC measures are in place. The Contractor must indicate to the TA what resource is needed in sufficient time to coordinate.
- d. FMF CB will assess completed deliverables and confirm if they have met the requirements within 5 days of having received them. Note that FMF CB may use the services of another government agency, in order to complete that assessment.
- e. FMF CB will provide parking for up to two vehicles at a time to support workers on site.
- f. FMF CB will provide free Subsafe and other mandatory training for the Contractor's staff required to work on site. The cost of attending these courses must be borne by the contractor, as they are design to keep the worker safe.

*Streams 1, 2, 3*

### **Meetings**

12. The following meetings may occur following contract award:

- a. If required a meeting can be held to clarify requirements and detailed arrangements between FMF CB and the Contractor for specific task authorizations (TAs).
- b. The Contractor must attend planning meetings if required by FMF CB project managers during periods of frequent radiography activity. FMF CB will give a minimum of 3 business days of notice for such meetings.

Note: Para 12 time is billable.

*Streams 1, 2, 3*

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## Deliverables

13. The Contractor must deliver the following items within 3 business days of completing the radiography.
- a. The Radiography Films properly labelled as specified in paragraph 8.
  - b. The Radiography Evaluation Report as specified in paragraph 8.
    - i. Results of the inspection to include any diagrams necessary to communicate results.
  - c. The Technique Sheet as specified in paragraph 8.

*Streams 1, 2*

14. The contractor must deliver the following items within 3 business days of completing MT, UT or PT:
- a. NDT report with results of the inspection including any diagrams necessary to communicate results.
  - b. Technique sheet so that the precise inspection can be recreated by another NDT technician in the future.

*Stream 3*

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APPENDIX 1 - EXAMPLE TECHNIQUE SHEET, NO MODIFICATIONS (I.E. NO COMMENTS IN COMMENTS SECTION)

### TECHNIQUE DND02 (Butt Weld)

Client:	Project:
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**Weld Details**

Material: <b>CuNi</b>	Welding Procedure: <b>n/a</b>	Bevel Configuration: <b>B/W</b>
Pipe Diameter: <b>30mm</b>	Wall Thickness: <b>5mm</b>	Reinforcement(s): <b>n/a</b>

**Radiography Details**

Procedure: <b>QA-TP-RT-03</b>	Revision: <b>0</b>
Exposure: <b>Double Wall Examination (DWE)</b>	Viewing: <b>Double Wall Viewing (DWV)</b>
Exposure Time: <b>18165 C/sec</b>	mAm # of Exposures Required: <b>3</b>
OFD: <b>30mm(D)</b>	Ug Factor= $F/d/D$ : <b>0.306mm</b>
SOD: <b>260mm(D)</b>	
Gamma: <b>N/A</b> <input type="checkbox"/>	
Isotope Type: <b>Selenium 75</b>	Source Size: <b>3.25mm(D)</b>
Source Strength: <b>76.9Ci</b>	Date (m/d/y): <b>08/24/15</b>
X-Ray: <b>N/A</b> <input type="checkbox"/>	
X-Ray Unit Rating: <b>kV</b>	<b>mA</b>
Beam Angle:	Test Conditions: <b>kV</b> <b>mA</b>
	Effective Focal Spot Size:

**Film / Processing Details**

Film Brand: <b>Agfa</b>	Film Type: <b>D3</b>	Film Class: <b>I</b>
Film Size: <b>70mmx142mm</b>	Screen Front: <b>(Pb) lead</b>	Screen Front: <b>0.005"</b>
# of Films Per Weld: <b>3</b>	Type: Back: <b>(Pb) lead</b>	Thickness: Back: <b>0.010"</b>
Processing: <b>Manual</b>	Processing Chemical: <b>Agfa</b>	Dev. Temp: <b>68C</b>
Dev. Time: <b>5min</b>	Fix Time: <b>3x clear</b>	Wash Time: <b>20min</b>

**Radiographic Film Evaluation**

Sensitivity	Required	Achieved	Film Density	Required	Achieved
hole type:			Weld Area:	<b>2-4</b>	<b>3.1</b>
wire type:	<b>EN #10</b>	<b>#13</b>	Base Metal:	<b>2.4</b>	<b>3.6</b>
IQI Placement: Film Side <input type="checkbox"/> Source Side <input checked="" type="checkbox"/>			Unexposed Base:	<b>&lt;0.3</b>	<b>0.09</b>
IQI Locations in accordance with Code / Standard: <b>DefStan 02-729 Part 1</b>			Section:		
Film Identification:	Code: <b>DefStan02-773 issue3</b>	Client Spec: <b>DefStan02-773 issue3</b>			
Weld Defects Noted: <b>See Report</b>					
Comments:					
Radiographer (Print):				Radiographer (Sign):	
				SNT Level: <b>III</b>	
				CGSB Level: <b>II</b>	
Supervisor (Print):			Supervisor (Sign):		
Client Rep. (Print):			Client Rep. (Sign):		
			Date (m/d/y):		

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APPENDIX 2 - EXAMPLE TECHNIQUE SHEET, MODIFIED (I.E. APPLICABLE COMMENT IN COMMENTS SECTION)

### TECHNIQUE DND01 (Sleeve Weld)

Client:	Project:
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**Weld Details**

Material: <b>CuNi</b>	Welding Procedure: <b>n/a</b>	Bevel Configuration: <b>fillet</b>
Pipe Diameter: <b>30mm</b>	Wall Thickness: <b>5mm</b>	Reinforcement(s): <b>Sleeve thickness 6mm</b>

**Radiography Details**

Procedure: <b>QA-TP-RT-05</b>	Revision: <b>0</b>
Exposure: <b>Double Wall Examination (DWE)</b>	Viewing: <b>Double Wall Viewing (DWW)</b>
Exposure Time: <b>5852 C/sec</b>	mAm # of Exposures Required: <b>3</b>
OFD: <b>42mm (d)</b>	Ug Factor= $f^2/d/D$ : <b>0.351mm</b>
SOD: <b>254mm(D)</b>	
Gamma: <b>N/A</b>	
Isotope Type: <b>Iridium 192</b>	Source Size: <b>2.125mm(f)</b>
Source Strength: <b>75.8Ci</b>	Date (m/d/y): <b>08/24/15</b>
X-Ray: <b>N/A</b>	
X-Ray Unit Rating: <b>kV mA</b>	Test Conditions: <b>kV mA</b>
Beam Angle:	Effective Focal Spot Size:

**Film / Processing Details**

Film Brand: <b>Agfa</b>	Film Type: <b>D5/D4</b>	Film Class: <b>1</b>
Film Size: <b>114.3mmX215.9mm</b>	Screen Front: <b>(Pb) lead</b>	Screen Front: <b>0.010"</b>
# of Films Per Weld: <b>6</b>	Type Back: <b>(Pb) lead</b>	Thickness Back: <b>0.010"</b>
Processing: <b>Manual</b>	Processing Chemical: <b>Agfa</b>	Dev. Temp: <b>68C</b>
Dev. Time: <b>5min</b>	Fix Time: <b>3x clear</b>	Wash Time: <b>20min</b>

**Radiographic Film Evaluation**

Sensitivity	Required	Achieved	Film Density	Required	Achieved
hole type:			Weld Area:	<b>2-4</b>	<b>2.3-3.6</b>
wire type:	<b>EN CU #6</b>	<b>#9/#10</b>	Base Metal:	<b>2.4</b>	<b>3.4</b>
IQI Placement: Film Side <input type="checkbox"/> Source Side <input checked="" type="checkbox"/>			Unexposed Base:	<b>&lt;0.3</b>	<b>0.15</b>
IQI Locations in accordance with Code / Standard: <b>DefStan 02-729 Part 1</b>			Section:		
Film Identification:	Code: <b>DefStan02-773 issue3</b>	Client Spec: <b>DefStan 02-772 Issue 1</b>			
Weld Defects Noted: <b>SEE REPORT</b>					
Comments: <b>Double Loaded D5 front/D4 Back, no lead between</b>					
Radiographer (Print):			Radiographer (Sign):		
Supervisor (Print):			Supervisor (Sign):		
Client Rep. (Print):			Client Rep. (Sign):		
			Date (m/d/y):		
			SNT Level: <b>III</b>		
			CGSB Level: <b>II</b>		

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APPENDIX 3 – EXAMPLE NDT REPORT



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**ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED**